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SUBJECT: NORTHERN GERMAN POWER - BRIDGING THE GAP WITH WIND, COAL,
AND GAS

REF: BERLIN 434

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11. (U) Summary: Energy security is a top priority for German politicians. Northern Germany has developed plans intended to make the region an energy exporter over the next several years of a mix of renewable and fossil-based energy sources. However, construction of the required new power plants faces various challenges. Public opposition to new coal-based power plants and some wind farms is high and the current financial crisis has limited credit for offshore wind farm development for small and medium sized companies. Most importantly, the electrical grid is not capable of handling larger inputs without significant upgrades. End Summary.

FOSSIL FUELS CONTINUE AS BASIS FOR THE ENERGY MIX

12. (U) In 2002, Germany's Social Democrat (SPD)/Green Party federal coalition amended the Nuclear Energy Law to phase out the use of nuclear energy by about 2020. In the past two years, two nuclear power plants near Hamburg have gone off-line due to technical difficulties. Several of the region's nine brown or hard coal power plants will soon be closed due to age. Approximately two-thirds of the 28 power plants that produce each 100 Megawatts (Mw) or more in northern Germany will be out of use by 2020. In response, state governments in the region have developed plans to construct 13 new hard coal power plants over the next decade and to expand the region's wind energy and biomass capabilities. The region is well situated geographically for coal-based power plants due to its proximity to ports. The states of Schleswig-Holstein (S-H), Lower Saxony (LS), and Mecklenburg-Vorpommern (M-V) have been expanding onshore wind farms since the mid-1980s and hope to develop extensively offshore farms in the North and Baltic Seas.

13. (SBU) Due to public disapproval, construction of several power facilities -particularly coal powered plants - has been delayed. Whether to approve continued construction of a 1,600 Mw hard-coal plant in Moorburg by Vattenfall was a very controversial issue in Hamburg this past fall. This case typifies the challenge facing local governments, which must provide sufficient energy while addressing environmental concerns.

14. (SBU) Mecklenburg-Vorpommern plans to establish an energy hub in Lubmin on the Baltic Sea near the Polish border. The Nord Stream pipeline will come ashore in Lubmin in 2011. The

pipeline is designed to handle initially 27.5 billion cubic meters of Russian gas annually. Plans by the Danish energy company, Dong, to construct a 1,600 Mw hard-coal power plant in Lubmin have run into significant public opposition due to the plant's proposed location directly next to popular beach resorts and concerns that its coolant water will impact Baltic Sea bacteria and fish populations. While Chancellor Merkel (CDU) has spoken out strongly in favor of the plant, her party's senior coalition partner in M-V, the SPD, has recently begun to waiver.

EEG: AN INCENTIVE FOR WIND DEVELOPMENT

15. (U) Following the Kyoto proceedings in 2000, the German parliament passed the Renewable Energy Act (EEG) that promotes research, development, and construction of water, wind, solar, geothermal, and biomass alternative energy. The EEG contains a "minimum price system" that regulates financial compensation for renewable power. According to the EEG, electric grid operators must pay investors fixed prices per Kilowatt-hour (kWh) for any regenerative energy fed into their networks. The EEG established price scheme is adjusted annually to encourage immediate investment and is revisable every four years to compensate for market fluctuations and improvements in technology. In turn, the government is able to strengthen the nation's ratio of renewable energies faster, while financiers benefit from higher, "locked-in" compensation rates that are paid by electricity operators.

16. (U) Conventional energy providers dispute the view of the German Wind Energy Association (BWE) that the EEG "places almost no extra burden on the consumer." The association argues that green energy adds only one Euro to the average monthly power bill, but saves the environment from 5.40 Euros worth of damage. The Federal Ministry for the Environment, Nature Conservation and Nuclear Safety estimates that in 2007 wind energy deployment in Germany prevented the production of 34 million tons of CO2.

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LAND-BASED WIND OPPORTUNITIES

17. (U) The northern German states lead the country in harnessing wind energy. As of 2007, Germany had approximately 19,000 land-based turbines with a capacity of 22,247 Mw. According to the German Wind Energy Institute (DEWI), 29 percent of S-H's power is generated by wind. M-V produced 30 percent of its power through wind in 2007. Northern German firms, such as Nordex, Enercon, REpower, and Prokon Nord, are leading producers of wind turbines employing over 82,000. The Lower Saxony town of Emden relies completely on renewable power to provide approximately 99.5 percent of its power supply. The Emden region currently has 56 modern wind mills that alone reduce 190,000 tons of carbon dioxide emissions per year.

18. (SBU) In a recent meeting with Pol/Econ Officer, BWE representatives stated that the German wind energy sector has been dominated during the last 15 to 20 years by small and medium sized companies. Although the energy company E.on has attempted to develop onshore wind parks, due to their smaller size they are generally not profitable for large energy companies. The market for new onshore wind parks is saturated and the best locations have been developed. Germany's population density makes it possible to construct only small projects that have no more than 20 turbines. This has forced companies to focus on replacing old turbines with newer, more efficient models, often increasing blade size and tower heights. However, legal restrictions on land use and local public opposition can inhibit construction. According to Karsten Benecke from the Hamburg turbine producer REpower, despite Germany's investment in wind power, the German market does not support the necessary research and development.

WINDY START TO OFFSHORE DEVELOPMENT

¶9. (U) Offshore wind farms have had a slow start in Germany. Unlike most offshore wind farms along the Danish and Dutch North Sea coasts that are close to shore, Germany is required to locate its offshore farms further out to sea in 30-40 meter deep water in order to avoid development in the Wattenmeer National Park. Construction on Germany's first offshore wind farm, Alpha Ventus is already a year behind schedule due to technical challenges posed by the deep water and shore distance. Three offshore wind farms are to be completed by 2009 with a combined output of approximately 512 Mw. The federal government has approved 16 North Sea wind farm projects and three Baltic Sea projects.

CREDIT CRUNCH FOR SMALLER COMPANIES

¶10. (SBU) In a recent meeting with Pol/Econ Officer, Tobias Kempermann, Berlin Office Head of EWE energy company, stated that while financing for Alpha Ventus is secure, the economic crisis has made financing smaller wind park projects more difficult. Under current credit conditions only large energy companies can afford to finance major offshore projects. Reportedly banks are requiring borrowers to put down 30 percent of the costs compared to only 15 percent prior to the financial crisis.

GRID UPGRADES CRITICAL TO FURTHER DEVELOPMENT

¶11. (SBU) Electric grid limits also pose a problem. Only five percent of land in Schleswig-Holstein, which has favorable wind conditions, can be used for wind farms because of grid limits. The Infrastructure Planning Acceleration Act of 2006 requires system operators to provide grid connections for offshore wind farms, but laying the cable connection can take 24 to 30 months and grid providers have no incentive to lay offshore cable. Costs for integrating wind parks into the grid which are currently borne by the system operator or transferred into higher electricity costs. The Upper Chamber of Parliament, however, is expected to approve the Law to Accelerate Expansion of the High Tension Grid on June 12. The Law was drafted in recognition of the need to connect offshore wind power from the north German coast to industrial centers in the west and south and aims to reduce the time needed (currently often over 10 years) for planning and construction of power lines. A major feature of the new legislation is the reduction of legal objection rights to planned links. Whether all such links will

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be laid underground is still an issue. Environmentalists have been successful in Lower Saxony, which has passed legislation that to a large extent forces new power lines underground but pushes up costs.

COMMENT

¶12. (SBU) Comment: If energy projects move forward in the five northern German states as planned, energy production will double by 2020 compared to 2005 rates, but CO2 emissions will also double if states only focus on constructing coal power plants. Without major infrastructure upgrades, the current electric grid is only able to handle non-fluctuating energy from sources such as coal or nuclear power plants. For Germany to continue pursuing CO2 emissions reductions, energy independence, and increased renewable energy generation, particularly wind along its coastline, politicians will need to take measures to improve the grid's capabilities. As S-H Minister President Peter Harry Carstensen (CDU) has stated, "When you mention wind, you also have to talk about electric grids." While financing for wind projects is currently a problem, interlocutors in the field believe it is only temporary, and that offshore wind energy

development will continue. By diversifying energy resources among gas, coal, and wind, northern Germany is establishing itself as a reliable energy provider for the rest of the country but is unlikely to succeed without an upgraded grid. End Comment.

¶13. (U) This cable has been coordinated with Embassy Berlin.
JOHNSON